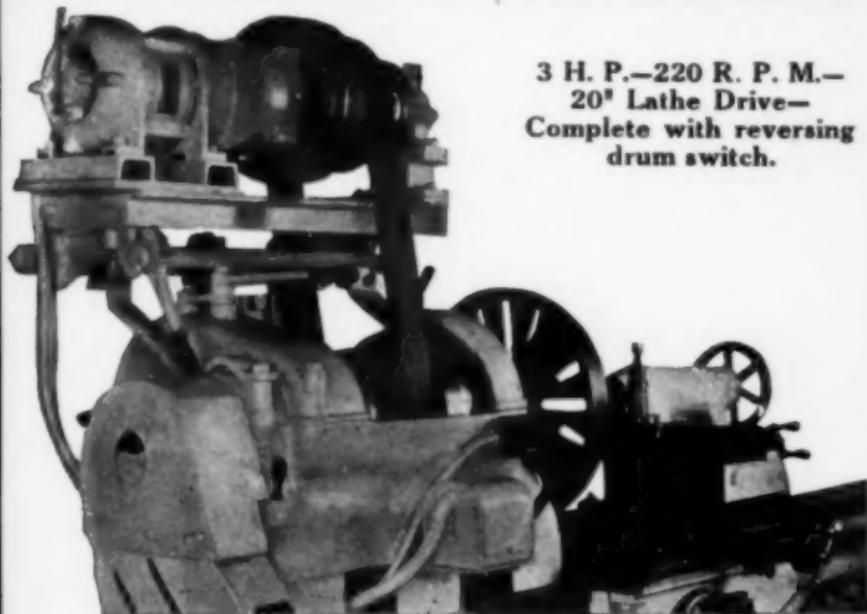


Hitchcock's Machine Tool Blue Book

MARCH, 1934

TWENTY-NINTH YEAR



3 H. P.—220 R. P. M.—
20" Lathe Drive—
Complete with reversing
drum switch.

Machine Tool Motorization

Modernize your cone pulley machines by the addition of one of these sturdy drives. Easy to attach—4 bolts and a short belt making your machine ready for heavy production. Complete drives available for a wide range of machines.

WRITE FOR DATA

THE PRODUCTION EQUIPMENT CO.
5213 Chester Ave., CLEVELAND, OHIO

PUBLISHED AT 508 So. DEARBORN ST. CHICAGO

NEW RIGIDMILS

New 3-A Rigidmil shown at right, and 3-C and No. 4 for larger work, give you greater possibilities for cutting costs, improving production, increasing net profits. Basic Rigidmil principles retained, many improvements added.

Investigate!



*Write TODAY,
for new
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**3-WHEEL
TOOL GRINDER**



BALANCING TOOLS

Made in 5 sizes, with capacities from 800 lbs. to 24,000 lbs. Others for propellers, flywheels, pulleys, etc.

For grinding and honing tungsten carbides — steel — stellite. 3 types. Get new circular.



These Sundstrand tools, like our Lathes and Milling Machines, cut costs and make work easier. . . .
INVESTIGATE! Address our Dept. H for details.

Hitchcock's
**Machine Tool
Blue Book**

**Selected
Circulation**

**20,000
Monthly**

MARCH, 1934

TWENTY-NINTH YEAR

To Manufacturers

You should not miss a careful reading of the article on page 9 of this issue.

Mr. Malcolm Muir, President of the McGraw-Hill Publishing Co., states some extremely pertinent facts, based upon his observations as a successful business man and as a recent Deputy Administrator of the NRA.

Manufacturers will find it much to their profit to follow the sound advice and heed the timely warning given by Mr. Muir.



Published By

Hitchcock Publishing Co.
508 S. Dearborn St., Chicago, Ill.

Consult the Classified Finding Index for your requirements

FOOTBURT



A Single Spindle Footburt Sipp Sensitive Drill

Made in three
sizes of single
and multiple
spindle models

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

FOOTBURT

KRW Hydraulic and Sensitive ARBOR PRESSES

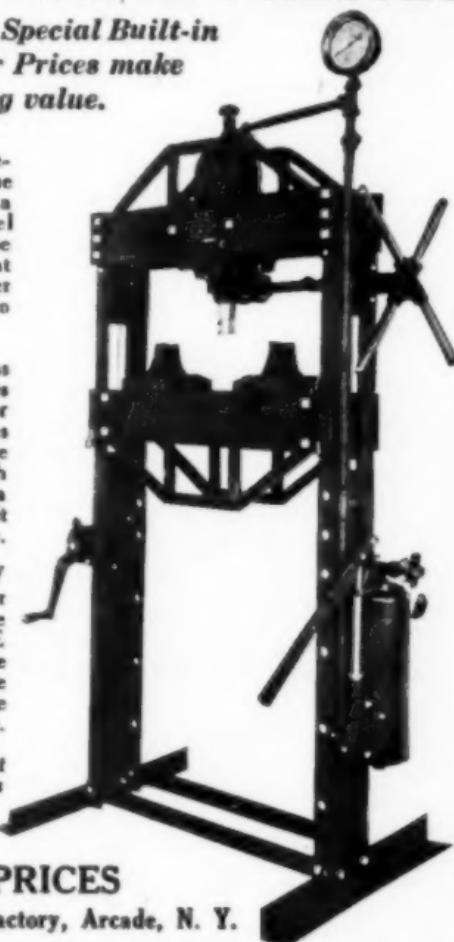
New Improvements, Special Built-in Features and Lower Prices make them an outstanding value.

THE last word in convenience, efficiency and ease of operation. Built extra strong and well braced, with steel trusses electrically welded, these presses will withstand strains that would cause presses of lighter and inferior construction to buckle or collapse.

Hand wheel for sensitive press operations has sliding handles which pull out to the ends for increased leverage. Work does not have to be changed from the work table as is the case with other make presses having a separate sensitive press unit mounted on the side or elsewhere.

The importance of this KRW feature as a time and labor saver can be appreciated. Also there is NO EXTRA CHARGE for this important built-in feature on a KRW Press. Work table can be raised easily with one hand. A strictly one-man Press.

Write for special circular, just off the press, giving full details and specifications of all KRW Arbor Presses.



PRICES

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No. 37—35 ton Hydraulic and Sensitive Arbor Press (hand operated)	\$128.00
No. 37B—35 ton Hydraulic and Sensitive Arbor Press (air-oil operated)	128.00
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(Can also be furnished in air-oil operated at same price)	
No. 37F—70 ton Hydraulic and Sensitive Arbor Press (hand oper. only)	275.00
Gauge and fittings, \$15.00 extra on all presses.	

K. R. WILSON

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WEST COAST BRANCH
722 Mateo St., Los Angeles

Anderson Ever Ready
Exceedingly Sensitive



Balancing Ways

Easy to Manipulate

Made in six sizes to balance anything that revolves from a crank shaft to a 24,000 lb. turbine rotor. They require no special leveling, no adjustment, and no centers.

Equipped with glass-hard spindles, chilled steel discs and especially sensitive ball bearings, to give accurate, long time service.

"Swing"	20"	40"	60"	72"	96"	120"
Greatest distance bet. standards.	20"	30"	30"	66"	88"	20'
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Aprox. shipping weight.....	45	90	150	350	650	
Code	Read	Read	Read	Read	Read	

Anderson Bros. Mfg. Co.
1915 Kishwaukee St., Rockford, Ill.

Nicholson Expanding Mandrels

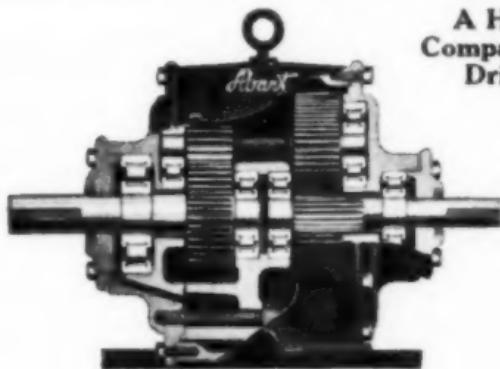


This one mandrel, the No. 4 size, will take every fractional part of an inch from 2" to 2 1/2". It would require 32 solid mandrels to do this in 64th sizes, and intermediate sizes could not be taken. Better order a few "Nicholsons."

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A Highly Efficient
Compact, Straight Line
Drive Spur Gear
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ANTI-
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BEARINGS

RATIOS
Up To
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1 H. P. to
400 H. P.

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We also Manufacture Gears of all Types and Materials.

Carroll Six-Inch Universal Dividing Head

CAN FURNISH EITHER
RIGHT OR LEFT HAND
Cut shows our right hand type

For the
Lighter
Class of
Milling



Quality at a reasonable price makes it a profitable investment.

Liberal allowance made on your old dividing head.

Bulletin and prices showing complete line mailed on request.

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Your loss will stop there if you have a handy WALTON TAP EXTRACTOR in your shop.

Simply insert the Fingers of this time saving device into the flutes of the broken tap, unscrew the Extractor with an ordinary tap wrench, and back the tap out. **A WALTON** obviates delays and operates so simply that an apprentice can handle it.

Made in three and four-flute styles.

Let us send you one for a sixty-day trial

The Walton Company
302 Pearl St., Hartford, Conn.



Flexible Shafts AND EQUIPMENTS

for Grinding, Polishing, Sanding, Drilling, Lathe-grinding, Screw-driving, Nut-setting and many other operations. Horizontal and vertical types. Quality machines for all industries.

New Catalog No. 26
Write for copy

Originators and Manufacturers

N. A. STRAND & CO.

5001 N. Lincoln St.

Chicago, U.S.A.

Improve Your Plants Or Commit Commercial Suicide

"Improve your plants—or go out of business."

That is the choice facing manufacturers of the country under NRA, according to Malcolm Muir, president of McGraw-Hill Publishing Company, who is back at his desk after his long service as deputy administrator of NRA.

"Old methods of doing business have been thrown into the scrap heap," commented Mr. Muir. "Through the process of codification, industry is faced with a complete revolution in methods of doing business. Efficient production management takes on new significance. Old marketing and sales programs are as dead as the dodo. I know of no instrument as valuable to business under these conditions as industrial and trade journals, particularly those which will live up to their responsibility and opportunity."

Mr. Muir pointed out that under the codes, buying of capital goods will be stimulated almost automatically.

"In general, these codes prohibit selling below cost," he said. "That means any manufacturer's own cost. There is nothing in any code to prevent him from selling under his competitor's cost. In view of this situation, it becomes obvious that normal competition will tend to force manufacturers to reduce their operating costs through modernization and increased efficiency of operation.

"The plant that does reduce its costs through modernization obtains an immediate economic advantage which it can use in many ways. It might even sell at the same price as its competitors and use the extra profit for improved quality, more salesmen, more advertising, for redesign of products, or for dividends.

"On the other hand it is my opinion that if the high-cost plant, which also has agreed not to sell below its cost, refuses to see the advantage of installing up-to-date machinery, and if it is determined to retain high costs by tolerating obsolescence, it is making what is virtually a decision to commit commercial suicide."—Reprinted by permission from *Class & Industrial Marketing Section*.



WITTEK AUTOMATIC Roll Feeds

FOR PUNCH PRESSES

Will feed from 0° to 30° per stroke. Fits any size or make of press.

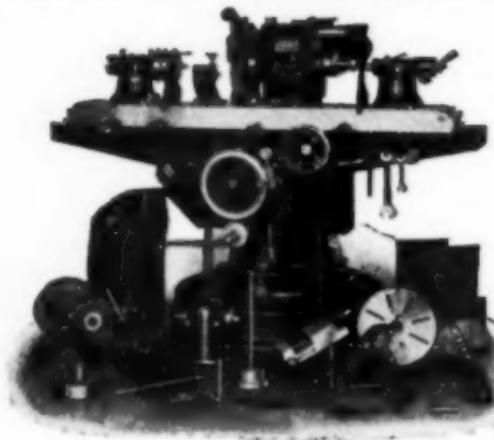
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Accurate
Automatic**

Low in first cost. No upkeep. Built with or without straightener to meet all feeding conditions.

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4305 W. 24TH PL. CHICAGO, ILL.

SIX Grinders In ONE



**12'x36'
Thompson
Universal
Grinder**

Does every grinding operation required in the machine shop. Lowest cost work for plain, surface, die, cutter, edge and internal grinding. All standard machines equipped with auxiliary independent coarse cross feed for surface grinding.

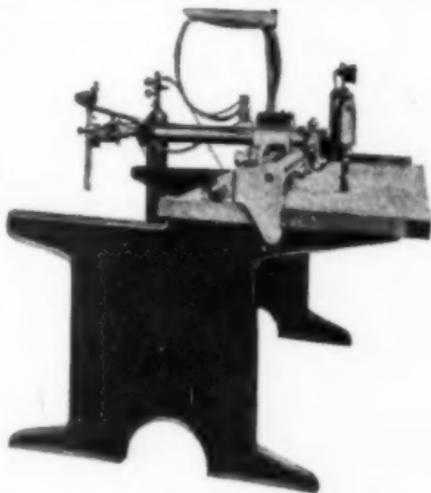
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The Thompson Grinder Company
1534 West Main St., : : Springfield, Ohio

The HANCOCK OXYCOP Reduces Your Cutting Costs

Here's How!

- Speedy Cutting
- Economical Operation
- Low Upkeep
- Accurate Cutting
- Wide Range
- Uses City Gas
- Easy to Operate
- Pays for Itself
- in Very Short Time



Every Tool Room Can Use It

DIES, jigs, fixtures, etc., usually drilled and finished on a shaper can be done with the Simplex Oxycop in a few minutes—instead of hours. Actual time studies show that jobs done by conventional methods and requiring 85 hours to complete were cut on the Oxycop in *less than 6 hours*. Cuts when completed are clean and smooth, unless a finished surface is desired, no machining is necessary. Steel cut this way does not carbonize.

Investigate This Fast, Economical Method

The Hancock Simplex Type Oxycop is made in three sizes. The No. 1—illustrated above—has a cutting capacity of 24" x 18"; No. 2, 36" x 24" and No. 3, 60" x 40". Nos. 1 and 2 can be furnished either as standard or universal machines. Full instructions are given with each machine. If you are interested in materially reducing your tool room costs it will pay you well to investigate the Hancock Oxycop.

*Write for Illustrated Catalog Giving Complete Information,
Including Interesting Tables of Cutting Time.*

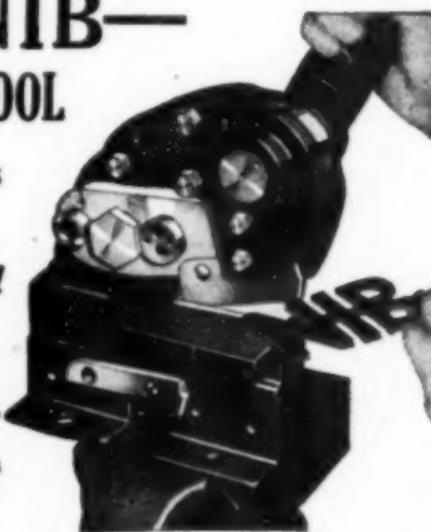
BRADLEY MACHINERY CO.
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New Process Saves
You 90% On—

*Templates, Trial
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Illustrations and prices
on complete line sent
on request.

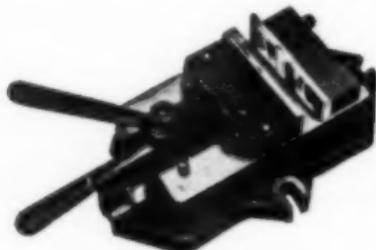


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Hard Usage Doesn't Phase The Hartford Milling Vise

Because it was designed to "take it"—and it does! It will stand up, day after day, under the heaviest, toughest strain of production milling work. Made of the best materials, with all parts interchangeable, it will outlast four or five ordinary vises. Rapid and accurate in operation—the top eccentric handle gives tremendous binding force, while the lower cam-faced handle gives instantaneous quick-opening and return. A trial in your shop will convince you better than anything we might say.

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Jaw width	5"
Jaw depth	1 1/4"
Maximum opening	3 1/2"
Weight	40 lbs

Also made in the swivel-jaw type with hard or soft jaws, maximum opening 2 1/4".

We also Build Machinery on a Contract Basis, Design and Develop Special Automatic Machinery—Gears and Cams Cut to Order.

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Stay *CLEAN* Inside



**HAMMOND
GRINDERS
And
POLISHERS**
AIR CLEANER
EQUIPPED MOTORS
DUST PROOF
BEARINGS



- Metallic Dust, Emery and Chips Cannot Get Into Bearings or Motor Windings.

Hammond Machinery Builders
1614 Douglas Ave.,
KALAMAZOO - - - MICHIGAN

Brand NEW

and a Marvel too

\$38.00



Do You Know

that you can buy a modern brand NEW MARVEL Hack Saw that will handle all work up to 8" x 8" for as little as \$38. f. o. b. Chicago—a 4" x 4" capacity at \$38. With MARVEL saws at that price it hardly pays to repair old ones. Ask your dealer to show you the No. 1 and No. 2 Marvel Sawing Machines, the "old reliable."

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Circular *"The Hack Saw People"*
341 N. Francisco Ave., CHICAGO, U. S. A.

GRINDERS

for roughing and finishing

FLAT WORK

Ring Wheels 12" and 18"
Table travels 16" and 24"

For Production to Tool Room



Send
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Circulars



PULLEY GRINDERS

Finish Belt Surface, Crowned or
Straight, from the Rough. Also
Truck Treads and Curved Work.

GRINDER CHUCKS hold
Abrasive Rings, 10" to 30" dia.

THE GRAHAM MFG. CO., 70 Willard Ave.
PROVIDENCE, R. I.

Armstrong Star Drills



Armstrong Bros. Tool Co., "The Tool Holder People," Chicago, have added Star Drills to their imposing list of Armstrong Tools. They are drop forged from special high carbon chisel steel, hardened and tempered and it is claimed hold their sharpness. They are finished in black baked enamel and edges are ground bright. Shanks are of proper stiffness to prevent bending.

In characteristic Armstrong style the new line is introduced "complete" with drills in "all sizes"; 8", 12", 18" and 24" lengths are made in diameters from $\frac{1}{4}$ " to 1" by sixteenths inches; large diameters from 1" to 1 $\frac{1}{2}$ " come by eighths in the 12", 18" and 24" lengths. Armstrong Star Drills are of the 4-point type and sell at the standard prices.

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LINLEY NOISELESS ROTARY RIVET SPINNING MACHINES

—assure peak production and lower Maintenance costs. Cover a wide range of riveting. Rigidly built and powerful. Made in 15 models.

Send samples of your work for riveting, cost of equipment, and true estimates on production.

"They Rivet Noiselessly"

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ATLAS 9"
Bench Lathe
\$79 cash
as shown, less
motor
with
motor **\$89**

SMALL INVESTMENT QUICK PROFITS

A very small investment in this power-saving lathe will quickly show you profits. Many shops have paid for their ATLAS equipment in 6 to 9 months. Does your small work with tool-room accuracy. Each ATLAS running tested for ".001" accuracy. Self contained countershaft, no outside shafting or pulleys. V-belt drive. Run by $\frac{1}{4}$ h. p. motor. 9" swing, 18" between centers; also larger sizes. Compound rest, hollow spindle, automatic, reversible feeds. 6 speeds. 4 to 72 threads.

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10
Months
Terms
if you
wish

Actual Riveting Results

Are Most Convincing



Send us samples of your most difficult work, in close corners or out-of-the-way places, let us rivet them on the—

GRANT NOISELESS SPINNING RIVETER

—and we will return them, with time and cost estimate.

The GRANT produces highly polished heads, without hammer or tool marks. Speed: a rivet a second. May be operated by unskilled labor—and it's *noiseless*.

Write for Catalog—and don't forget to send that sample!

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For Light and Heavy Etching

With 24 Stages of Control.

The LUMA Master Etchtool fulfills every marking requirement that can be done by an electric Etching outfit.

A Production Tool with as many as 24 different stages or varieties of control for regulating the depth of marking, this tool can be used for extra light marking of machine scales, micrometers and fine tools or can be used for extra heavy and deep marking of rough and unfinished iron, cast iron, forgings, steel plates, etc.

Send for circular giving complete data and details of this modern instrument.



Built rugged for continuous work on the production line.

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PERFECT HOLES AT 3000 R. P. M.

WITH THE NEW

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BALL BEARING

FRICITION DRIVE
At Spindle Speed

CAPACITY:

Size No. 1 { Brass $\frac{1}{4}''$
Steel $\frac{3}{16}''$

Size No. 2 { Brass $\frac{1}{2}''$
Steel $\frac{7}{16}''$

Also other sizes
and styles

TAPPING ATTACHMENT

FRICITION REVERSE
At Twice Spindle Speed



*Write for our catalog
with prices*

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STANDARDIZATION PAYS

Universal Joints

Steel and Bronze



*Send for Circular giving specifications
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Save Space, Time and Labor

Cut handling costs—eliminate waste motions—save time with Stackbins.

The contents of each individual Stackbin are always accessible without disturbing the bins above or below.

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Acme Drill Jig Bushings are a standardized product, carried in stock for prompt delivery in over 6,700 standard items. They are completely finished and ready for use. The Bushings are made by the most exacting scientific methods, which insures long wear, accurate fit and absolute satisfaction. Special sizes made to order.

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A PRECISION MICROMETER FOR \$1.50



Size 0 to 1"

Guaranteed to be absolutely accurate. Money refunded if not satisfactory.

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UNCONDITIONAL GUARANTEE
If this Housing ever
Breaks or Dilfers we
will replace it Free
THE RIDGE TOOL CO.
ELYRIA, O.

the **Rigid** is like that all over. You can't break or warp the housing or the hook jaw. Adjusting nut fairly spins in open housing. Double strength I-beam handle is good to your hand.

Try the **Rigid**
Pipe Wrench and you won't want to go back to the other kind. Ask your jobber.



The Ridge Tool Co., Elyria, O., U.S.A.

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PIPE WRENCHES, CUTTERS, VISES, THREADERS

Gem Drill Press



Made
In
3-sizes
Up To
10½"

Vise



Milling Machine

Vise

Jaws open 6 3/4"

Plain & Swivel Base Vise

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Simplex-M Abrasive Band Grinder

This Grinder accelerates production and cuts costs. Hand emerying or filing operations are antiquated in comparison. The use of this new modern machine assures straight grain finishes with sharp edges. Details of this and other styles and sizes on request.

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The "BUTTERFLY" Filing and Die Making Machine

Saves 50% cost in sawing, filing and lapping
on dies, gauges, tools, etc., up to 1" thick

In highest possible quality of material, precision of machining and nicety of adjustments, the "BUTTERFLY" Filing Machine is as painstaking a product as the finest watch movement—and just as reliable.



Noiseless in Operation!

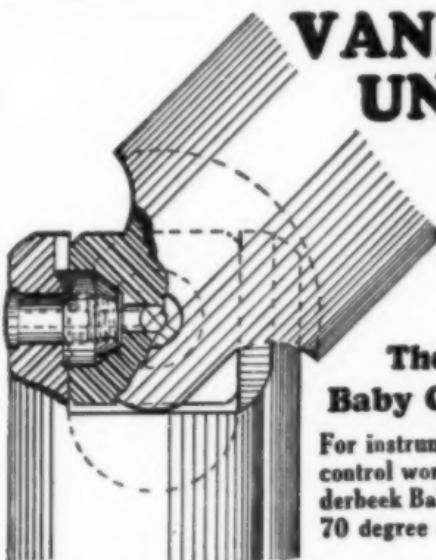
Made in its entirety under the direct personal supervision and exacting standards of the well recognized and able engineer, Leonard Markels.

The spirit of craftsmanship that makes every Harvey Product supremely dependable is carried out to the minutest detail in the manufacturing and assembling. All parts are interchangeable.

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The GIANT with hardened and ground working surfaces for heavy duty.

The Baby Giant

For instrument and control work. The Vanderbeek Ball Joint runs to 70 degree angle.



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MADE BY
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WELDING MACHINES ½ TO 100 K.V. A.

FOOT OPERATED
MOTOR DRIVEN

For Welding Metals
Having a Combined
Thickness from .001 in.
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Drop-Forged Lathe Dogs "C" Clamps



These are lifetime tools that do not spread or give—that can be depended on not to slip. Drop forged from special open hearth steel, they have extraordinary stiffness, toughness . . . strength. Screws have double wear threads, are of special steels hardened at the point. They will not "upset". Hubs of these Lathe Dogs are over-size, large enough to permit re-tapping, to give double life.

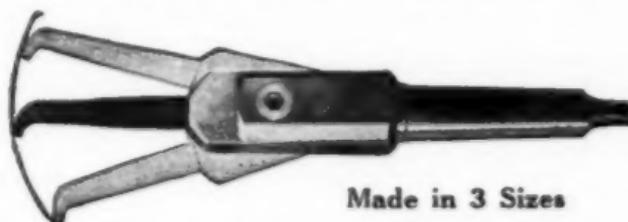
Sizes and Types for every machine shop and tool room use, each an ARMSTRONG TOOL—the finest that can be made.

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"The Tool Holder People"
308 N. Francisco Ave., CHICAGO, U. S. A.
New York Sales Offices, 109 Lafayette St.

MAXWELL E-Z SET BORING TOOL



Made in 3 Sizes

Not a new tool. Has stood the test of years. Simple in construction, Compact, Rigid, Positive Adjustment. **MONEY BACK GUARANTEE.**

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Because they are made of the right quality of tool steel.

Because they are hardened with every care.

Because all our experience of 43 years is centered in making them accurate, rugged and dependable.

*Large stock of regular sizes
Special sizes quickly made*

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"Champion" Emery Wheel Dresser

Outlasts a Dozen Cheaper Dressers

The "Champion" is made by experts, for long life and the best service. The only dresser that runs in an oil bearing.



The most economical dresser you can buy. Cutters are made of the best grade of tool steel, milled and heat-treated and tempered —fully guaranteed. Get the complete details on this cost saving tool.

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The Western Tool & Mfg. Co.
SPRINGFIELD, OHIO

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OVER
95,000
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Semi-Steel

Drop Forged Steel

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Hardening
Furnace

TYPE NO. 1705

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\$36

Case diam.
4 1/2 in.

Scale length
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With 10 ft. Alloy Wire
connector block and a
No. 8 gauge insulated
thermo couple 24" long
without protection tube

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HAND-EE Grinder

Model B Hand-ee Hi-Power

The new Grinder of many adaptations. Compact, portable — easiest of all Grinders to handle even for new and inexperienced help. Weighs only 3 pounds. Plugs into any light socket. Universal motor A. C. or D. C. 100 V. speed 17,000 R. P. M. without load. Complete with 3 wheels (shapes as specified) in a special container with wrenches and dressing stone. ONLY \$35.00.



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Saw, friction, Nos. 2 & 3 Ryerson.
Saw, hack, Racine Jr. 4"x4", m. d.
Saw, hack, No. 5 Marvel, 6"x6".
Saw, hack, No. 4 Robertson, 8"x8".
Screw mches., Nos. 52, 53, 55 Nat. A.
Shapers, 16", 20", 24" & 36" G. & E.
Shear, angle, 6"x6"x1" H. & J.
Shears, alligator, 14", 2", 3" & 4".
Shear, bevel, Lennox 4", b. d.
Shear, circle, No. 13 Niagara, b. d.
Shears, foot, 30" and 36" Pexto.
Shear, guil., No. 5 H. & J. 4"x4", m. d.
Shear, rot. No. 114 Lennox 4", b. d.
Shear, squar., 52" Niagara, 4", m. d.
Shear, squaring 8"x14 ga. Ohl, b. d.
Shear, 12" x 4" Wheeling, 31" gap.
Slitter, 38" Lamb & Nash, Model F.
Straightner, 72" Newbold, 9 roll m. d.
Straightner, 18" & 4" round Abramson.
St'r. & sh., No. 1026 B. & J. 9"x16".
Swaging mch., No. 5-A Standard.
Testing mch., Brinnell hardness.
Upsetters, 1" to 6".
Welders, spot and butt.
Woodworking Machinery.

**USED AND REBUILT MACHINERY
FOR SALE BY**

Brown Machinery Co.,

Drills: 24", 26" and 32"; No. 66-D Moline 4-spindle Hole Hog. Grinders: No. 6 Bealy dbl. spindle; No. 220 Badger auto. disc; 12x30" Modern, plain, a. c. c. s.; No. 4 Cincinnati, 14x72 cylindrical; P. & W. 36" vertical surface. Hammer, 40 lb. Bradley helve; 100 lb. Little Giant. Lathes, 30" Blaiddell, 26" Harrington gap. ext. bed; 26" Putnam, taper att.; 18" & 16" Lodge & Shipley; 16" & 14" Monarch; 7"x6' Lo-swing; 18"x10' South Bend.

2333 N. 9th St., St. Louis, Mo.
Millers: No. 2 Hendey-Norton, univ.; No. 3 $\frac{1}{2}$ Fox; No. 4 Hendey Lincoln; Planer, 42x42x10 Pond. Press, No. 7 Zeh & Hahneman, Nos. 1, 3, 4 Loslough Jordan. Punch, Cleveland C, 1 in 4"; Rock River Stvle L, 1 in 4". Punch & shear, No. 9C Beloit, 1 in 4". Punch & shear, L & A, 1" cap. Riveter, No. 5A High Speed, 1". Shaper, 24" Ohio: 26" Queen City. Threaders: 1" Geometric; National 1 $\frac{1}{2}$ " double head and single head. Welder, 20 k. w. Agnew.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 Hadley Street,

St. Louis, Mo.

Air compressors, all sizes. Bar shear, 5"x14". Bolt header, 2" Ajax. Boring mill, 26" Gisholt. Bulldozer, No. 3 Williams-White. Bulldozer, No. 4 Ajax. Drills, 1 spindle Avery. Grinder, Wells Bros. universal. Grinder, 12"x60" Landis universal. Grinder, 12"x36" Thompson univ. Grinder, No. 60 Heald cylinder. Hammer, 60 lb. Bradley helve. Lathe, 16"x9" Lehman. Lathe, 24"x12" Schumacher & Boye. Lathe, 24"-48"x18" McCabe, 2-spdl.

Lathe, 36"x18' American, q. c. g. Lathe, 30"x16' Prentice, geared hd. Millers, Nos. 3 & 4 Brown & S., pl. Miller, Ingersoll slab, 27"x23"x14' bed, 4 heads, motor drive. Pipe machines, 4" and 8". Planer, 60"x48"x10 Gray. Press, No. 14 Bliss toggle. Press, No. 24 Toledo cam drawing. Press, No. 723 Toledo cam drawing. Punch, No. 14 W. W., 12" throat. Punch, two 20" throats, cap. 1" in 1" Sand slinger, Beardsley & Piper. Shaper, 16" Smith & Mills. Shaper, 24" American, motor drive.

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill

MILLERS

No. 3 Rockford, motor drive. No. 4 Becker. No. 2 Oesterlein. No. 1 Kempsmith.

No. 2 Brown & Sharpe universal. Nos. 2 & 3 Becker vertical. 8" Pratt & Whitney automatic.

SHAPERS

17" Smith & Mills, motor drive. 20" Gould & Eberhardt. 21"x11' Wickes, tapping attachment. 12"x6" Davis, motor drive. 16"x6" Hendey, serial 27650.

20" American. 16" Stockbridge.

LATHES

20"x8" LeBlond. 18"x8" Rockford. 18"x9" Chard, tapping attachment.

PRESSES AND SHEARS

58" Ferracute dbl. cr., m. d., 100 ton. 36"x36" Toledo double crank, arch. No. 3 $\frac{1}{2}$ Walsh, flywheel. No. 5 Michigan dbl. action cam.

No. 35 Atlas, motor drive, arbor. 8 $\frac{1}{2}$ " cap. Toledo, gap. 36" Stoll, 14" capacity.

MISCELLANEOUS

Bolt cutters, Acme. Gear cutters, No. 3 Brown & S. Gear cutters, Geometric; Landis. Grinders, No. 11 Brown & S. cylind.

Grinders, No. 2 Norton. Keyseaters, 1" Baker; No. 2 Davis. Tapper, Gaterman. Turret lathe, 24" Gisholt.

USED AND REBUILT MACHINERY

FOR SALE BY

W. L. Steege Electric & Machinery Co. 12 S. Clinton Str., Chicago

Bargains

Lathe, 16x6 LeBlond tool room, collets, 3 years old.....	\$375.
Lathe, 14x6 Hendey tool room, collets, reconditioned.....	325.
Miller, No. 1B Milwaukee, and vise, 4 years old.....	450.
Miller, No. 1 Kempsmith universal, vise and dividing head.....	450.
Miller, No. 25A Osterlein universal, vise and dividing head.....	475.
Press, No. 105 Consolidated, double crank.....	300.
Press, punch, No. 5 Consolidated, geared, o. b. i., 3" stroke.....	450.
Shaper, 20" Cincinnati, arranged for motor drive, like new.....	300.

And many others. Write us your requirements.

FOR SALE BY

Reliance Machinery Sales Company

1405 Brighton Road, N. S.

Pittsburgh, Pa.

Air compressor, 170 cu. ft. Worthn.	
Automatic, 14" Cleve. 4-spdl., m d.	
Bulldozer, No. 9 Williams & White.	
Drill, 4 spindle No. 4 Colburn Mfg.	
Drill, 4 spindle No. 2 Colburn, Mfg.	
Drill, 4' Western radial, motor dr.	
Drill, 6' Cincinnati-Bickford, radial.	
Hammer, 300 lb. Bradley up. helve.	
Hammer, 100 lb. Beaudry upright.	
Lathe, 48"x20' Betts-Bridge., m. d.	
Miller, No. 2½ Rockord, plain.	
Press, 84" Bliss double crk., No. 54.	
Press, No. 14 Bliss Toggle, 80,000 lb.	
Press, No. 594 Toledo, 145,000 lb.	
Shaper, 16" Whipp, b. g., vee ram.	
Shapers, 24" & 32" G. & E. 230 v. d. c.	
Shear, squar. 60"x18 ga. Streine.	
Screw mach., No. 4 W. & S. univ.	
Tapper, 1" Acme, 6-spdl. nut.	
Shear, alligator, hi.knife, 1½" sq.	

FOR SALE BY

Scott-Bansbach Machinery Co., 4607 West 20th St., Chicago, Ill.

Air compressor, Chicago P. short belt drive, 12"x10", 369 cu. ft., 50 h. p., a. c. motor, starter, belt and tanks, Type NSB.....	\$ 550.
Automatic screw machines, B. & S., No. 90, 0 and 2.....	\$100. to 450.
Automatic screw machine, Gridley 4 spindle "F", 18" and 24".....	\$300 to 700.
Automatic screw machine, 34" Cleveland Model A, No. 27182, as is.....	300.
Bolt cutter, 1" Landis, belt drive.....	125.
Drill, Mason h. s. b. b., pedestal type, 4 speeds, with motor 220-60-3.....	125.
Drill, 24" Sibley sliding head, b. g. and v. f.....	125.
Drill, 2-spindle H. W., h. s., b. b. heavy duty, class B.....	150.
Drill, 8 spindle Henry & Wright, h. s., b. b., 12" swing.....	150.
Gear cutter, B. & S. No. 3, 26" for spur gears.....	200.
Grinder, Norton No. 1, universal cutter and tool, 8"x15".....	150.
Grinder, Norton 6"x32" plain, Serial No. N3423.....	350.
Grinder, Gardner No. 4 disc, 23" dia. with press and tables, ball brg.....	200.
Grinder, Kansom disc, 26" diameter with press and tables.....	150.
Grinder, chaser or dies, H. & G., also Modern.....	\$50. & 100.
Hammer, No. 3A High Speed with motor 220-60-3.....	200.
Lathe, 14"x6" American, q. c. with 4 jaw and 3 jaw chuck.....	250.
Lathe, 15"x8" Von Wyck, l. c. g., with chuck.....	125.
Lathe, 18"x8" Davis, d. b. g., q. c., heavy duty.....	450.
Lathe, 18"x8" Chard, l. c. g., heavy duty.....	175.
Lathe, 18"x12" Hamilton, d. b. g., q. c., heavy duty, 2 chucks.....	475.
Lathe, gap, 22, 36"x8" Barnes, sliding bed.....	575.
Lathe, 30"x13" H. S. & G. heavy duty, q. c., d. b. g. 16,000 lbs.....	800.
Miller, No. 2H B. & S. plain, cone type, with vise, c/s and arbors.....	400.
Miller, Cleveland universal, No. 1 g. h., fully equipped.....	450.
Miller, No. 2 MU Garvin universal, fully equipped.....	350.
Miller, 12" Cincinnati, mfg. type, s. p. d., vise and pump.....	150.
Miller, Briggs, G & E. manufacturing, 16".....	75.
Miller, No. 5 Becker vertical, no rotary.....	300.
Miller, No. 7 Becker, Lincoln type.....	75.

USED AND REBUILT MACHINERY

FOR SALE BY

C. H. Waters Machinery Co. - 221 Harrison St., Elkhart, Ind.

MESTA OSCILLATING AND ROTATING PICKLING MACHINE
Steam or air operated. Capacity 11,000 pounds per hour. Diameter of cylinder 32". Equipped with four bronze alloy baskets, 54" x 14" x 27" long each. Can also furnish acid-proof Goodrich Vulcalock steel tank 6' 9" x 9' 9" x 5' 1" deep. Good condition. Low price.

FOR SALE BY

H. F. Wolnick Machinery Sales

Phone Lawndale 1777 - - - 21st & Marshall Blvd., Chicago

Automatics, Potter & J., 5A & 6A.
Bench lathes, with benches.
Engine lathes, 12" to 30".
Drill presses, 1 to 6 spindles.
Gear cutters and hobs.

Grinders, various sizes.
Milling machines, Nos. 1 to 4.
Punch presses, sizes Nos. 1 to 7.
Screw machines, automatic.
Shapers, 16" to 32"

FOR SALE BY

McDonald Machinery Co.

Bolt mchs., Landis & Acme 1 $\frac{1}{2}$ ".
Boring mill, Lucas & Bul. hor. & vert.
Brake, D. & K. 6" 10 gauge, power.
Drills, Cin-Bickford 3" & 3 $\frac{1}{2}$ " radials.
Drill, Moline 32-spindle hole hog.
Gear hobber, G. & E. 24" & 60".
Grinders, B. & S. No. 2 surf. & univ
Grinder, Cincinnati 14" x 22" plain.
Keyseaters, M. & M. No. 2.
Lathes, Hendey 20" x 10', 13" x 6' &
20" x 12", grd. hd.; 50 others in stock.
Milling machines, B. & S. No. 5, vert.
Milling machines, Van Norman
No. 2 duplex; B. & S. No. 1 $\frac{1}{2}$ Cinc.
No. 1 $\frac{1}{2}$, Hendey No. 1-B, Kemp.

1535 N. Broadway, St. Louis, Mo.

No. 3; Ohio No. 29 B. & S. No. 2-A
single pulley drive, all universal;
Kemp, No. 1, LeBlond No. 3-H.;
B. & S. No. 3-B, s. p. d., Cleve-
land No. 2, s. p. d., all plain,
Cincinnati 12" Mfg.
Pipe mches., Curtis, B. & K. 12" m. d.
Punch press, d. c. grd., 79" between
uprights, 5" stroke, wt. 38,000 lbs.
Screw machines, Foster No. 8, gr. hd.
Shapers, G. & E. S. & M., Cin., Ohio,
American, Steptoe, Queen City,
12", 16", 18", 20", 24" and 26".
Square shears, Bertsch 10' 16 ga.
Turret lathes, W. & S. No. 2A univ.

FOR SALE BY

The Jones Machine Tool Co.

Air compressor, 10x10 Bury.
Bolt cutter, 2" Landis (long bed).
Bolt cutter, 1 $\frac{1}{2}$ " Landis, single spdl.
Bolt cutter, 1 $\frac{1}{2}$ " Landis, dbl. spdl.
Boring mill, No. 32 G. & L., s. p. dr.
Brake drum truing lathe, m. d.
Gear cutter, No. 13 B. & S., bevel & sp.
Gear hobber, No. 1 Adams, Farwell.
Gear hobber, No. 12 Barber-Colman.
Grinder, No. 1 Diamond surf. 12x24"
Grinders, disc, various sizes.
Keyseater, No. 1 Baker.
Lathes, shapers & planers, all sizes.
Milling machines, all sizes.
Nibbler, No. 1 Gray 3/16" capacity.
Radial drills, various types.
Rail drill, 10' Andrews 16-sp., 4" cap.
Shear, 10' Poorman 14 gauge.

Front & Pike Sta., Cincinnati, Ohio

Shear, 60" L. & A. 3/16" cap., 18" gap.
Snaer, 60" Voder, rotary, 16 ga.
Shear, 18" Southwark rotary, 10 ga.
Shear, 37" Toledo 16 ga. 15" gap.
Welder, 20 k. w. Gibb spot.
Welder, 35 k. w. Federal spot.
Upsetters, 2" Ajax, belt drive.

PRESSES

No. 1, Bliss, toggle.
No. 92 B Toledo 35" dbl. crank, grd.
No. 91C Toledo 36" dbl. crank, plain.
No. 40B Robinson 42" dbl. crk., grd.
No. 43 Robinson 46" dbl. crank, grd.
Open back inclinables. Various sizes.

PRESS-BRAKES

60" V. K. & V., 16 ga., motor drive.
120" Ohl, 16 ga., belt drive.
120" Bertsch, 3/16", motor drive.

We have a large stock—Send for new list

USED AND REBUILT MACHINERY

FOR SALE BY

The Elyria Belting & Machinery Co.,

Corner Williams and Buckeye Streets,

Elyria, Ohio

Grinder, Modern tool, 12x24, self-contained, countershaft.
 Press, No. 164-A Consolidated, 3" stroke, weight 25 tons.
 Press, No. 5-A Toledo, inclinable, 3" stroke.
 Press, No. 55 Toledo, straight side, double back geared, 16" stroke.
 Shaper, 16" Smith & Mills, plain.
 Shaper, 16" Smith & Mills, back geared.
 Shaper, 24" Cincinnati, crank, back geared.
 Shaper, 34" Gould & Eberhardt, crank, back geared.
 Shear, 48" Toledo, squaring, 11 gauge.

FOR SALE BY

Marr-Galbreath Machinery Co.,

Air compressor, 10x10" Chgo., n.s.b.
 Air comp., 18-21 cu ft., 175 lb., m. d.
 Angle roll, No. 3 Niagara, 1 $\frac{1}{2}$ x3 $\frac{1}{16}$ ".
 Boiler, htg., No. 4-GS 28 Amer.-Gas.
 Bolt cutter, 4" Geometric, m. d.
 Bolt cutter, 1 $\frac{1}{2}$ " Acme, Landis heads.
 Boring mill, horiz. 4" bar, Niles.
 Boring mill, vert. 42" Bullard, s.hd.
 Boring mill, 30" Coiburn.
 Boring mill, 72" Cincinnati t. (95%).
 Brake, 8"x14 ga. D. & K. belt.
 Brake, 48"x18 ga., P. S. & W., hand.
 Brake 10' Keene toggle, 16 gauge.
 Brake, 10"x18 ga. D. & K. hand.
 Brake, 10"x3 $\frac{1}{16}$ " Dries & K., power.
 Brake or press, 10"x10 ga., Ohl.
 Broaching mch. Nos. 1 & 3 LaPointe
 Bulldozer, No. 4 W. W., motor dr.
 Bulldozer, No. 28-W. W., motor.
 Crimping roll, 64" Robinson, 16 ga.
 Drills, 20" b. g., p. f.
 Drill, 26" Rockford, g. f. taper att.
 Drill, 26" Prentice, b. g., s. h., m. d.
 Drill, radial, 3' Dreses, 3' Cinn.-B.
 Engine, Diesel, 200 h. p. horizontal.
 Forging mch., 1 $\frac{1}{2}$ ", 3" & 3 $\frac{1}{2}$ " (steel).
 Furnace, No. 27 Stewart, Blower.
 Grinder, 12"x96" Landis pl., for m.d.
 Grinder, No. 18 Landis universal.
 Grinder, No. 2-B & S., surface, b. d.
 Grinder, bench., 1 $\frac{1}{2}$ h.p., U. S. motor.
 Grinder, disc, No. 4 Gard'r, d. e., b.b.
 Grinder, universal t. & c. Nos. 2 & 3.
 Hack saw, 13"x16" Peerless, b. d.
 Hammer, No. 2-B Nzel, m. d.
 Hammer, 40 lb. Bradley, H. H.
 Hammer, 100 lb. Bradley, U. S.
 Hammer, 800 lb. Erie atm. forg., s.f.
 Hammer, 1000 lb. Chbg., steam drop.
 Hoists, chain, 1 to 8-ton capacity.
 Jointer, 6" Fay & Egan; 12" Powers.
 Keyseater, 24"x24" Morton.
 Lathe, 13"x6" Sebastian g. h., a.c.m.
 Lathe, 14"x6" P. & W. pan, d-in., t. a.
 Lathe, 18"x6" National, g. c. g.
 Lathe, 20"x8" Hendey, tie-bar, t. a.
 Lathe, 20"x10" Hendey tie-bar, t. a.

58 Water St., Pittsburgh, Pa.

Lathe, 18"x12" Hendey, t. b.; t. a.
 Lathe, 19"x10" LeBlond, q. c. g., t.a.
 Lathe, 22"x10" 10" Greaves-K., q.c.g.
 Lathe, 24"x12" Pgh., q. c. g., chuck.
 Lathe, 24"x16" S. & B., chuck, t. a.
 Lathe, 48"x26" geared head, m. d.
 Millers, plain, No. 3 LeBlond.
 Miller, No. 28 Ohio; No. 3 Cin.ti.
 Miller, 2-GS. Hendey, g. b., s. p. d.
 Millers, horiz. No. 4 Ohio, 72x30x20"
 Millers, vert., Becker, 3, 4B, 5B.
 Miller, universal No. 4 B. & S.
 Miller, auto. No. 2-M P. & J., s.p.d.
 Motors, 1, 2 & 3 ph., also d. c.
 Pipe machine, Williams, 3", s. p. d.
 Pipe machine, 8" Jarecki.
 Planer, 24"x24"x4" Pond, I head.
 Planer, 48"x48"x10" Cin., m. d. rev.
 Planer, 30"x10" W. & P., 2-heads.
 Press, 42-h.p. Toledo, hor, plain.
 Press, No. 6 Toledo, o. b. i., pl. m. d.
 Presses, o. b. i., 18, 20 Bliss, m. d.
 Press, 74" S. Bliss b. g., 10" str.
 Press, 75" Bliss, b. g., t. r., 8" str.
 Press, 78" Bliss, d. g., t. r., 10" str. (2).
 Press, No. 80 $\frac{1}{2}$ Bliss, tie-rod, 32" str.
 Presses, 250-ton B. & B. tire, vert.
 Punch, s. e., Badger, 7" thrt., 8"x8".
 Punch, s.e., No. 1 L&A 14"x11", 30" t.
 Punch & shear, d.e., 9-A. Beloit.
 Punch & shear, d. e. 16" thts; 14"x1"
 with angle & barshear blades, m. d.
 Riveters, 2-A, 5 $\frac{1}{2}$ B, high speed.
 Shaper, 20" Cin. G. B., a.c. motor.
 Shapers, 16" and 24" G. & E., m. d.
 Shaper, 24" P. & J. down feed & m.d.
 Shaper, 25" S & M., b.g., crk., b. d.
 Shear, 36"x16" Niagara, foot.
 Shear, foot, 36" Niagara, 18" gap.
 Shear, plate, 97"x $\frac{1}{2}$ " Toledo, m. d.
 Shear, thtless Lennox, 4", 6",
 Shear, rotary, 16 ga., Yoder, 24" thr.
 Shear, 10"x16 ga. Ohl power.
 Slotter, die, Garvin, cone drive.
 Unishear, A-10 Stanley, m. d.
 Welder, butt, 200 & 300 k. w.
 Wheel press, 60-ton W. S., 34"x8 $\frac{1}{2}$.

USED AND REBUILT MACHINERY

FOR SALE BY

J. P. Rentschler & Co., - 6722 N. Maplewood Ave., Chicago

Apr. brake, No. 182 D. & K. 8'x14 ga.
Apr. brake, No. 206 D. & K. 10'x14".
Apr. brake, No. 227 D. & K. 12'x14".
Mill'g mch. No. 3A B. & S. univ. m.d.
Presses, various sizes and types.

Press, No. 2-W Bliss wiring.
Press, embossing, 500 ton cap.
Rolls, bending, 4'x16 & 6'x14 ga.
Threading mch., 5/16" Geometric.
Welder, spot, Taylor 10 k. w.

FOR SALE BY

American Machinery Company 5511 Euclid Ave., Cleveland, Ohio

Air compressor, 8"x8" Chicago, b. d.
Bolt cutter, 3" Acme, belt drive.
Drill, 4" Dresen radial, gear box.
Grinder, 18" Graham, face.
Grinder, 7 1/2 h.p. U.S. Elec. 24x2" whls.

Lathe, 28"x12" Greaves-Klus, q.c.g.
Plating gen. set, 6000 amp. 12 volts.
Presses, No. 12 W - F., hot trim (3).
Press, No. 58 Toledo hot trim, s. s.
Screw mch., No. 6 W. & S. hand (3).

FOR SALE BY

Percy M. Brotherhood & Son 114-118 Liberty Str., N. Y. City

Boring mills, 10" Niles; 72" Sellers; 44"-54"-61" Bullard Maxi-Mills.
Lathes, 72"x40" Putnam; 72"x50" Pond.
Forging Machines. Press Brakes, Shears, Bending Rolls, Planers, Shapers,
Grinders, Milling Machines all sizes.
All Selected Tools.

FOR SALE BY

Davis Machinery Co., St. Clair & Washington Sts., Toledo, Ohio

Boring mill, 24" Bullard, side head.
Drill, 4-spindle Henry & W. h. s.
Drill, 3-spindle Leland-Gifford h. s.
Lathe, 20"x10" American q. c. g., d. b. g.
Miller, No. 2 Brown & Sharpe univ.
Miller, No. 2 Rockford universal.

Millers, Model C Becker, vert. (2).
Press, 18-C Bliss o. b. i.
Press, No. 3 Niagara o. b. i.
Shaper, 20" Ohio back geared.
Slotter, 6" Newton.
Tappers, No. 2 & 2X Garvin, (4).

FOR SALE BY

E. L. Klauber Machinery Co., 320-22 S. Third St., St. Louis, Mo.

Gear cutter, No. 14 Whiton for spur, bevel and worm gears, automatic.
Lathes, 14x8, 16x8, 18x8, 22x12, 24x12 and 30x14.
Saws, No. 5 Robertson hi-speed; 6x6 Racine hi-speed.
Screw machines, No. 0 Brown & Sharpe automatic; No. 3 Wood tilted turret.
Shapers, 14" Steptoe; 16" Steptoe b. g.; 20" G. & E. b. g.
Surface grinder, No. 2 LaSalle automatic, with magnetic chuck.

FOR SALE BY

J. L. Lucas & Son, Inc., - 3 Fox St., Bridgeport, Conn.

Late Type Toolroom Equipment.
Lathes, 14"x6" Monarch motor in base, Timken head, (2).
Lathe, 16"x8" American motor in base.
Miller, No. 2 Van Norman duplex, late type.
Shavers, 15" and 24" Gould & Eberhardt, motor drive.
Surface grinder, No. 33 Abrasive, motor drive.

USED AND REBUILT MACHINERY

FOR SALE BY

C. H. Waters Machinery Co.

Die filer, Oliver, motor drive.
Hammer, 3A High Speed, m. d.
Lathe, 32" x 10' S. & Boye, q. c. g.
Miller, No. 14 Knight vertical.
Press, No. 14 Robinson o. b. i.

221 Harrison St., Elkhart, Ind.

Press, No. 2 L. & J. o. b. i.
Press, No. 95 Bliss-Consolidated.
Press, No. 4P Ferracute.
Shaper, 20" & 28" G. & E. b. g., c. d.
Blowers, hard'g furnaces, many others

FOR SALE BY

The E. L. Essley Machinery Co.

Telephone Lincoln 6320

Drill, radial, 2½" Mueller.
Drill, radial, 5" Prentice.
Drill, radial, 5" Pond.
Drill, radial, 6" American.
Press brake, D. & K. 86", 12 ga. cap.

831 Rees St., Chicago

Press, 65C Niagara, double crank.
Shear, 6' Niagara, 14 ga., m. d.
Shears, 42" Stoll, 16 ga. cap.
Shears, 4' Niagara, 3/16" cap., m. d.
Shears, 10' 3/16" cap. L. & A., m. d.

FOR SALE BY

Wigglesworth Machinery Company

199 Bent Street,

Boring mill, No. 0 G. & L.
Engraver, E-5 Keller.
Miller, 6" x 18" P. & W. thread.
Miller, 6" x 30" P. & W. thread.
Miller, No. 2 B Milwaukee univ.

Cambridge, Mass.

Miller, 48" x 24" x 10' Ingersoll.
Nibbler, No. 1, 6" Campbell.
Seamer, No. 3 B Bliss, double.
Shear, No. 1120 Niagara power, 18 ga.
Jones & Lamson, 2 spdl., like new.

FOR SALE BY

The O'Brien Machinery Co.

Automatic, 9/16" "G" Gridley 4-sp.
Bending rolls, 10' Bertsch, 3" cap.
Boring mill, 34" King, 1 head.
Boring mill, 74" Gisholt vert., 2 hds.
Column facer, 14" Espen-Lucas.
Crane, electric travel, 15 ton a.c. mtrs.
Drills, all sizes upr., sensi. & radial.
Flanging machine, 3" McCabe.
Grinder, 10" x 32" Landis, self contained, plain.
Hammer, 800 lb. Erie, steam forging.

113 N. Third St., Philadelphia, Pa.

Lathe, 18" x 6' Monarch, taper.
Miller, No. 3 B. & S., pl., s. p. dr.
Miller, Univ. No. 2A Brown & S.,
range 28" x 8" x 18".
Pipe machines, 2, 4, 6, 8 and 12"
belt and motor drive.
Press, 36" Z. & H. double crank,
cap. 80 tons.
Punch, No. 3 Southwark 4x4", mtr.
Punch, Thomas angle duplikator.
Shear, Niagara 8', cap. 3/16", 1" gap.

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Bolt cutter, 2" National, dies.
Drill, 2½" Fosdick radial, s. p. d.
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Drill, 4 spindle Fox, No. 1 m. t.
Drill, 14" C-O, No. 2 m. t. m. d.
Drill, No. 4 Avey hssb, 3/16" cap.
Drill, No. 2 Avey hssb, No. 3 m. t.
Keyseater, No. 2 Davis, 9 cutters.
Lathe, 14" x 6' Champion, q. c. g.
Lathe, 14" x 6' Star, pl. c. g.

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Miller, No. 1 Kemp, univ., vert hd.
Millers, Nos. 1 & 2 Kemp, plain
Miller, No. 1 ½ A Rockford pl. v. hd.
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Shaper, 16" Smith & Mills crank.
Shaper, 20" Kelley crank, back grd.
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Tester, Brinell "A" with micro.
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Drill, ISS Garvin duplex, 2 $\frac{1}{2}$ " cap.
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Grinder, No. 10 B. & S. ext.

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Lathe, No. 9 LeBlond multi-cut.
Millers, Nos. 1 & 2 Brown & Sharpe.
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Turret lathe, Nos. 2 & 6 Warner & S.

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Gear generators, 15" Gleason, m. d.
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72" Hamilton 225 ton dbl. crk. m. d.;
Nos. 54 & 6 Niagara o. b. i. flywheel
Shapers 20" Hendey b. g., cone; new
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Thread miller, 6x60 P. & W.
Turret lathes, Nos. 2-A & 3-A W. & S.
Welders, 10 & 15 kw. A.E.F. spot, 98%.

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24"x10" American cone head.
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No. 5 Cincinnati High Power, Rect-
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No. 4 Cincinnati H. P. Pl., S. P. D.
3B Milwaukee Plain Miller, D. O. M.
Single Pulley Drive.
No. 2-B & 3-B Milw. Pl., Dbl. O. A.
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Nos. 3; 5-B; 6 Becker Vertical.
No. 3 Cincinnati Vert. H. P., S.P.D.
Nos. 2 and 3 Cincinnati High Power
Plain, S. P. D. flange nose.
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5" Pratt & Whitney Automatic.
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16", 20", 24" G. & E., mtr. dr. thru g. b.
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- No. 350 G. & L. Floor Type, 5" bar Niles, Bement, Pond, Floor Type.

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- 42" Bullard "New Era".
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- 10"x20", 10"x36", 10"x52" Landis, m.d.
- 14"x36", 14"x72", Norton.
- 18"x96" Norton Motor Drive.
- 20"x120" Landis, Motor Drive.
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- No. 1, No. 2 Brown & Sharpe.
- No. 2, 10"x25" Universal (Bath).
- No. 2-A 16"x32" Landis, Motor Dr.

GRINDERS, MISCELLANEOUS

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- No. 33 Abrasive Vert. Surf. M. D.
- No. 22 12" Heald Rotary Surface, 14"x36" Pratt & Whitney, Model B.

MILLING MACHINES, PLAIN

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- No. 2 B Milwaukee, motor-in-base, Timken bearings.
- No. 2-M Cincinnati, single pul. dr.
- No. 2 Cincinnati High Power, s.p.d.
- No. 3 Cincinnati High Power, s.p.d.
- No. 3-B Brown & Sharpe, s. p. d.
- No. 3-B Milwaukee, single pul. dr.
- No. 4-B Brown & Sharpe, motor dr.
- No. 4 Cin. Hi Power, rect. overarm.
- No. 5-B Brown & Sharpe, mtr. dr.

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- 12" x 5' Cleveland, geared head.
- 14" x 6' Carroll-Jamieson, q. c.

18" x 8' American qk. ch., taper att.

24" x 14' Le Blond.

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- Nos. 52, 53 and 55 National Acme.
- 21" and 24" Gisholt, (motor drive).

6" capacity Acme.

13/16" capacity Foster (2).

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20" Smith & Mills, back grd. crank.

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- 24" x 20" x 8' Ingersoll horizontal, motor drive, like new.
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- 6" x 15" Fitchburg plain.

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10" x 20" Landis plain.

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- Blowers, positive pressure.

Boring mill, No. 3 Colburn.

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3' & 4' Mueller.

3' & 6' Cincinnati-Bickford.
3' American.
3' Morris.

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No. 10 Blanchard.
12" & 16" Head rotary.
14" Pratt & Whitney.

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Nos. 2, 3 & 78 Wilmeth & Morman.

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12" x 6' & 18" x 8' Hendey.
12" x 6' & 14" x 8' LeBlond.
14" x 6' & 16" x 6' Monarch.
16" x 8' Lodge & Shipley.
16" x 10' American.
17" x 8' LeBlond.
18" x 8' Cisco geared head.
19" x 10' Sidney.

20" x 8' Lodge & Shipley.
22" x 10' Bradford.
24" x 12' Milwaukee.
26" x 16' Putnam.
27" x 12' Schumacher & Boye.
32" x 14 $\frac{1}{2}$ ' Schumacher & Boye.
48" x 19' American, geared head.
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Nos. 1 $\frac{1}{2}$, 2 & 3 Brown & Sharpe.
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30" Ingersoll continuous.

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26" x 24" x 6' Ingersoll.
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38" & 42" Briggs Type B.
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All makes hand millers.

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30" x 30" x 8' Cleveland openside.
30" x 30" x 8' Gray.
30" x 30" x 12' Cleveland openside.
32" x 32" x 12' Niles.
36" x 36" x 8' Gray.

36" x 36" x 10' Cincinnati.
36" x 36" x 12' Cincinnati.
36" x 42" x 12' Cleveland openside.
42" x 42" x 12' Niles.
48" x 48" x 10' Liberty.
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48", No. 92C Toledo double crank.
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800 ton Bliss embossing.
150 ton Ferracute embossing.
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No. 74 $\frac{1}{2}$ Bliss.

Nos. 1, 2 & 3 Consolidated.
No. 6 Adriance O. B. I.
100 ton Oilgear hydraulic.
No. 76 Toledo open back.
No. 5N American Can, geared.
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drive, 10 H. P. 440-3-60.
No. 1 Bliss Cam Drawing Press, Geared, arr. for motor.
No. 7 and 10 Zeh-Hahneman Percussion Presses.
54" Bullard Maxi-Mill, 220-3-60 motor.
36" Niles Vertical Boring Mill, 2 heads.
14" P. & W. Vert. Surface Grinder, model 2B, mag. chuck.
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No. 50 Heald Internal Grinder, motor drive.
Walker Tool Room Grinder, with equipment.
1/2"-7/8"-5 1/2" Model A Cleveland Automatics.
No. 2 Foster plain and friction head Screw Machine.
6"x32" Norton Plain Grinders, fine condition.
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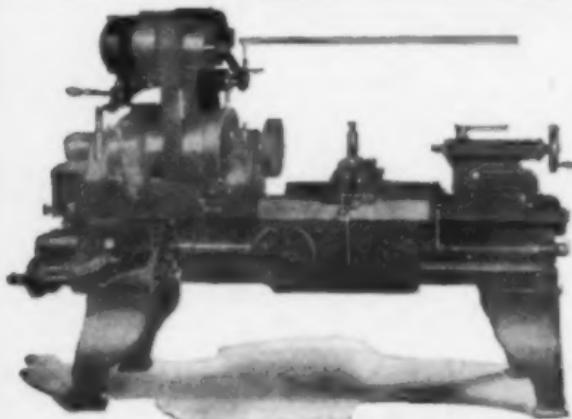
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